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SEQUENCE LISTING

JUN 11 2002

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TECH CENTER 1600/2900

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<120> SUCROSE TRANSPORT PROTEINS

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<140> 09/679, 687  
<141> 2000-10-05

<150> 60/081, 148  
<151> 1998-04-09

<150> PCT/US99/07562  
<151> 1999-04-07

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<213> Zea mays

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Arg Leu Ile Leu Ala Gly Met Val Ala Gly Gly Val Gln Tyr Gly Trp  
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Ala Leu Gln Leu Ser Leu Leu Thr Pro Tyr Val Gln Thr Leu Gly Leu  
50 55 60  
  
Ser His Ala Leu Thr Ser Phe Met Trp Leu Cys Gly Pro Ile Ala Gly  
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Leu Val Val Gln Pro Leu Val Gly Leu Tyr Ser Asp Arg Cys Thr Ser  
85 90 95  
  
Arg Trp Gly Arg Arg Pro Phe Ile Leu Thr Gly Cys Met Leu Ile  
100 105 110  
  
Cys Val Ala Val Ile Val Val Gly Phe Ser Ser Asp Ile Gly Ala Ala  
115 120 125  
  
Leu Gly Asp Thr Lys Glu His Cys Ser Leu Tyr His Gly Pro Arg Trp  
130 135 140  
  
His Ala Ala Ile Val Tyr Val Leu Gly Phe Trp Leu Leu Asp Phe Ser  
145 150 155 160  
  
Asn Asn Thr Val Gln Gly Pro Ala Arg Ala Met Met Ala Asp Leu Cys  
165 170 175  
  
Asp His His Gly Pro Ser Ala Ala Asn Ser Ile Phe Cys Ser Trp Met  
180 185 190  
  
Ala Leu Gly Asn Ile Leu Gly Tyr Ser Ser Gly Ser Thr Asn Asn Trp  
195 200 205  
  
His Lys Trp Phe Pro Phe Leu Lys Thr Ser Ala Cys Cys Glu Ala Cys  
210 215 220  
  
Ala Asn Leu Lys Gly Ala Phe Leu Val Ala Val Val Phe Leu Val Leu  
225 230 235 240  
  
Cys Leu Thr Val Thr Leu Ile Phe Ala Lys Glu Val Pro Tyr Arg Ala  
245 250 255  
  
Asn Glu Asn Leu Pro Thr Thr Lys Ala Gly Gly Glu Val Glu Thr Glu  
260 265 270

Pro Thr Gly Pro Leu Ala Val Leu Lys Gly Phe Lys Asp Leu Pro Pro  
275 280 285

Gly Met Pro Ser Val Leu Leu Val Thr Ala Ile Thr Trp Leu Ser Trp  
290 295 300

Phe Pro Phe Ile Leu Tyr Asp Thr Asp Trp Met Gly Arg Glu Ile Tyr  
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His Gly Asp Pro Lys Gly Ser Asn Ala Gln Ile Ser Ala Phe Asn Glu  
325 330 335

Gly Val Arg Val Gly Ala Phe Gly Leu Leu Leu Asn Ser Val Ile Leu  
340 345 350

Gly Phe Ser Ser Phe Leu Ile Glu Pro Met Cys Arg Lys Val Gly Pro  
355 360 365

Arg Val Val Trp Val Thr Ser Asn Phe Met Val Cys Val Ala Met Ala  
370 375 380

Ala Thr Ala Leu Ile Ser Phe Trp Ser Leu Arg Asp Tyr His Gly Tyr  
385 390 395 400

Val Gln Asp Ala Ile Thr Ala Asn Ala Ser Ile Lys Ala Val Cys Leu  
405 410 415

Val Leu Phe Ala Phe Leu Gly Val Pro Leu Ala Ile Leu Tyr Ser Val  
420 425 430

Pro Phe Ala Val Thr Ala Gln Leu Ala Ala Thr Arg Gly Gly Gln  
435 440 445

Gly Leu Cys Thr Gly Val Leu Asn Ile Ser Ile Val Ile Pro Gln Val  
450 455 460

Ile Ile Ala Leu Gly Ala Gly Pro Trp Asp Ala Leu Phe Gly Lys Gly  
465 470 475 480

Asn Ile Pro Ala Phe Gly Val Ala Ser Ala Phe Ala Leu Val Gly Gly  
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<213> Zea mays

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Phe Ser Leu Leu Gly Leu Pro Leu Ser Ile Thr Tyr Ser Val Pro Phe  
35 40 45  
  
Ser Val Thr Ala Glu Leu Thr Ala Gly Thr Gly Gly Gln Gly Leu  
50 55 60  
  
Ala Thr Gly Val Leu Asn Leu Ala Ile Val Val Pro Gln Ile Val Val  
65 70 75 80  
  
Ser Leu Gly Ala Gly Pro Trp Asp Ala Leu Tyr Gly Gly Asn Thr  
85 90 95  
  
Pro Ala Phe Val Leu Ala Ser Val Phe Ser Leu Ala Ala Gly Val Leu  
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<212> DNA  
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<400> 6  
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Arg Pro Phe Ile Leu Ile Gly Cys Met Leu Ile Cys Leu Ala Val Ile  
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Val Val Gly Phe Ser Ser Asp Ile Gly Ala Ala Leu Gly Asp Thr Lys  
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Glu His Cys Ser Leu Tyr His Gly Pro Arg Trp His Ala Ala Ile Val  
115 120 125  
  
Tyr Val Leu Gly Phe Trp Leu Leu Asp Phe Ser Asn Asn Thr Val Gln  
130 135 140  
  
Gly Pro Ala Arg Ala Met Met Ala Asp Leu Cys Gly His His Gly Pro  
145 150 155 160  
  
Ser Ala Ala Asn Ser Ile Phe Cys Ser Trp Met Ala Leu Gly Asn Ile  
165 170 175  
  
Leu Gly Tyr Ser Ser Gly Ser Thr Asn Asn Trp His Lys Trp Phe Pro  
180 185 190

Phe Leu Met Thr Asn Ala Cys Cys Glu Ala Cys Ala Asn Leu Lys Gly  
195 200 205

Ala Phe Leu Val Ala Val Val Phe Leu Ile Met Cys Leu Thr Ile Thr  
210 215 220

Leu Phe Phe Ala Lys Glu Val Pro Tyr Arg Gly Asn Gln Asn Leu Pro  
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Thr Lys Ala Asn Gly Glu Val Glu Thr Glu Pro Ser Gly Pro Leu Ala  
245 250 255

Val Leu Lys Gly Phe Lys Asn Leu Pro Thr Gly Met Pro Ser Val Leu  
260 265 270

Leu Val Thr Gly Leu Thr Trp Leu Ser Trp Phe Pro Phe Ile Leu Tyr  
275 280 285

Asp Thr Asp Trp Met Gly Arg Glu Ile Tyr His Gly Asp Pro Lys Gly  
290 295 300

Ser Asn Ala Gln Ile Ser Ala Phe Asp Glu Gly Val Arg Val Gly Ser  
305 310 315 320

Phe Gly Leu Leu Leu Asn Ser Ile Val Leu Gly Phe Ser Ser Phe Leu  
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Ile Glu Pro Met Cys Arg Lys Val Gly Pro Arg Val Val Trp Val Thr  
340 345 350

Ser Asn Phe Met Val Cys Val Ala Met Ala Ala Thr Ala Leu Ile Ser  
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Phe Trp Ser Leu Lys Asp Tyr His Gly Tyr Val Gln Asp Ala Ile Thr  
370 375 380

Ala Ser Thr Ser Ile Lys Ala Val Cys Leu Val Leu Phe Ala Phe Leu  
385 390 395 400

Gly Val Pro Leu Ala Ile Leu Tyr Ser Val Pro Phe Ala Val Thr Ala  
405 410 415

Gln Leu Ala Ala Thr Lys Gly Gly Gln Gly Leu Cys Thr Gly Val  
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Leu Asn Ile Ser Ile Val Ile Pro Gln Val Ile Ile Ala Leu Gly Ala  
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Gly Pro Trp Asp Ala Leu Phe Gly Lys Gly Asn Ile Pro Ala Phe Gly  
450 455 460

Val Ala Ser Gly Phe Ala Leu Ile Gly Gly Val Val Gly Val Phe Leu  
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Thr Arg Leu Gly Ala Ile Ile Val Tyr Leu Val Gly Phe Trp Leu Leu  
35 40 45

Asp Val Gly Asn Asn Ala Thr Gln Gly Pro Cys Arg Ala Phe Leu Ala  
50 55 60

Asp Leu Thr Glu Asn Asp Pro Arg Arg Thr Arg Ile Ala Asn Ala Tyr  
65 70 75 80

Phe Ser Leu Phe Met Ala Leu Gly Asn Ile Leu Gly Tyr Ala Thr Gly  
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Ala Tyr Ser Gly Trp Tyr Lys Ile Phe Pro Phe Thr Val Thr Pro Ser  
100 105 110

Cys Ser Ile Ser Cys Ala Asn Phe Lys Ser Ala Phe Leu Leu Asp Ile  
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Ile Ile Leu Val Val Thr Thr Cys Ile Thr Val Ala Ser Val Gln Glu  
130 135 140

Pro Gln Ser Phe Gly Ser Asp Glu Ala Asp His Pro Ser Thr Glu Gln  
145 150 155 160

Glu Ala Phe Leu Trp Glu Leu Phe Gly Ser Phe Arg Tyr Phe Thr Leu  
165 170 175

Pro Val Trp Met Val Leu Ile Val Thr Ala Leu Thr Trp Ile Gly Trp  
180 185 190

Phe Pro Phe Ile Leu Phe Asp Thr Asp Trp Met Gly Arg Glu Ile Tyr  
195 200 205

Arg Gly Ser Pro Asp Asp Pro Ser Ile Thr Gln Ser Tyr His Asp Gly  
210 215 220

Val Arg Met Gly Ser Phe Gly Leu Met Leu Asn Ser Val Leu Leu Gly  
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Phe Thr Ser Ile Val Leu Glu Lys Leu Cys Arg Lys Trp Gly Ala Gly  
245 250 255

Leu Val Trp Gly Val Ser Asn Ile Leu Met Ala Leu Cys Phe Val Ala  
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Met Leu Val Ile Thr Tyr Val Ala Lys Asn Met Asp Tyr Pro Pro Ser  
275 280 285

Gly Val Pro Pro Thr Gly Ile Val Ile Ala Ser Leu Val Val Phe Thr  
290 295 300

Ile Leu Gly Ala Pro Leu Ala Ile Thr Tyr Ser Ile Pro Tyr Ala Met  
305 310 315 320

Ala Ala Ser Arg Val Glu Asn Leu Gly Leu Gly Gln Gly Leu Ala Met  
325 330 335

Gly Ile Leu Asn Leu Ala Ile Val Ile Pro Gln Val Ile Val Ser Leu  
340 345 350

Gly Ser Gly Pro Trp Asp Gln Leu Phe Gly Gly Asn Ala Pro Ala  
355 360 365

Phe Ala Val Ala Ala Ala Ser Phe Ile Gly Gly Leu Val Ala Ile  
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<212> PRT  
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Thr Ser Asp Ala Ala Ser Leu Ala Pro Cys Pro Arg Arg Ser His Gln  
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Thr Leu Pro Asp Leu Arg Pro Ala Met Asp Ser Ala Ala Gly Gly Gly  
65 70 75 80

Gly Leu Thr Ala Ile Arg Leu Pro Tyr Arg His Leu Arg Asp Ala Glu  
85 90 95

Met Glu Leu Val Ser Leu Asn Gly Gly Thr Pro Arg Gly Gly Ser Pro  
100 105 110

Lys Asp Pro Asp Ala Thr His Gln Gln Gly Pro Pro Ala Ala Arg Thr  
115 120 125

Thr Thr Arg Lys Leu Val Leu Ala Cys Met Val Ala Ala Gly Val  
130 135 140

Gln Phe Gly Trp Ala Leu Gln Leu Ser Leu Leu Thr Pro Tyr Ile Gln  
145 150 155 160

Thr Leu Gly Ile Asp His Ala Met Ala Ser Phe Ile Trp Leu Cys Gly  
165 170 175

Pro Ile Thr Gly Phe Val Val Gln Pro Cys Val Gly Val Trp Ser Asp  
180 185 190

Lys Cys Arg Ser Lys Tyr Gly Arg Arg Arg Pro Phe Ile Leu Ala Gly  
195 200 205

Cys Leu Met Ile Cys Phe Ala Val Thr Leu Ile Gly Phe Ser Ala Asp  
210 215 220

Leu Gly Tyr Ile Leu Gly Asp Thr Thr Glu His Cys Ser Thr Tyr Lys  
225 230 235 240

Gly Ser Arg Phe Arg Ala Ala Ile Ile Phe Val Leu Gly Phe Trp Met  
245 250 255

Leu Asp Leu Ala Asn Asn Thr Val Gln Gly Pro Ala Arg Ala Leu Leu  
260 265 270

Ala Asp Leu Ser Gly Pro Asp Gln Cys Asn Ser Ala Asn Ala Ile Phe  
275 280 285

Cys Thr Trp Met Ala Val Gly Asn Val Leu Gly Phe Ser Ser Gly Ala  
290 295 300

Ser Gly Asn Trp His Lys Trp Phe Pro Phe Leu Met Thr Arg Ala Cys  
305 310 315 320

Cys Glu Ala Cys Ser Asn Leu Lys Ala Ala Phe Leu Val Ala Val Val  
325 330 335

Phe Leu Leu Phe Cys Met Ser Val Thr Leu Tyr Phe Ala Glu Glu Ile  
340 345 350

Pro Leu Glu Pro Thr Asp Ala Gln Arg Leu Ser Asp Ser Ala Pro Leu  
355 360 365

Leu Asn Gly Ser Arg Asp Asp Asn Asn Ala Ser Asn Glu Pro Arg Asn  
370 375 380

Gly Ala Leu Pro Asn Gly His Thr Asp Gly Ser Asn Val Pro Ala Asn  
385 390 395 400

Ser Asn Ala Glu Asp Ser Asn Ser Asn Arg Glu Asn Val Glu Val Phe  
                   405                  410                  415  
  
 Asn Asp Gly Pro Gly Ala Val Leu Val Asn Ile Leu Thr Ser Met Arg  
                   420                  425                  430  
  
 His Leu Pro Pro Gly Met Tyr Ser Val Leu Leu Val Met Ala Leu Thr  
                   435                  440                  445  
  
 Trp Leu Ser Trp Phe Pro Phe Phe Leu Phe Asp Thr Asp Trp Met Gly  
                   450                  455                  460  
  
 Arg Glu Val Tyr His Gly Asp Pro Asn Gly Asn Leu Ser Glu Arg Lys  
                   465                  470                  475                  480  
  
 Ala Tyr Asp Asn Gly Val Arg Glu Gly Ala Phe Gly Leu Leu Leu Asn  
                   485                  490                  495  
  
 Ser Val Val Leu Gly Ile Gly Ser Phe Leu Val Asp Pro Leu Cys Arg  
                   500                  505                  510  
  
 Leu Met Gly Ala Arg Leu Val Trp Ala Ile Ser Asn Phe Thr Val Phe  
                   515                  520                  525  
  
 Ile Cys Met Leu Ala Thr Ala Ile Leu Ser Trp Ile Ser Phe Asp Leu  
                   530                  535                  540  
  
 Tyr Ser Ser Lys Leu His His Ile Ile Gly Ala Asn Lys Thr Val Lys  
                   545                  550                  555                  560  
  
 Asn Ser Ala Leu Ile Val Phe Ser Leu Leu Gly Leu Pro Leu Ser Ile  
                   565                  570                  575  
  
 Thr Tyr Ser Val Pro Phe Ser Val Thr Ala Glu Leu Thr Ala Gly Thr  
                   580                  585                  590  
  
 Gly Gly Gln Gly Leu Ala Thr Gly Val Leu Asn Leu Ala Ile Val  
                   595                  600                  605  
  
 Val Pro Gln Ile Val Val Ser Leu Gly Ala Gly Pro Trp Asp Ala Leu  
                   610                  615                  620  
  
 Phe Gly Gly Asn Val Pro Ala Phe Ala Leu Ala Ser Val Phe Ser  
                   625                  630                  635                  640  
  
 Leu Gly Ala Gly Val Leu Ala Val Leu Lys Leu Pro Lys Leu Pro Asn  
                   645                  650                  655  
  
 Ser Tyr Arg Ser Ala Gly Phe His Gly Phe Gly  
                   660                  665

<210> 11  
 <211> 1885  
 <212> DNA  
 <213> Glycine max

<400> 11  
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 ttacgcaaaa tgattttgtt gtcgtcaatg gcggccgta tccaaattcgg gtgggcctta   180  
 cagctctccc ttctcacccc atatgttcaa accctaggcg tccccatgc ttgggcctca   240

tttatttggc tatgtggccc gatatctggg ctgctggtgc agcccatgtt gggctacagc 300  
agcgaccgat gccaatccc ttcggctcg cgccgtccct ttatccttagc cgggtcttg 360  
gccgtcgcca ttgctgtgtt cctaatttgt tacgcggccg atataaggaca cgcggcaggc 420  
gacaacctga cccaaaagac tcggccacgt gcagtggcga tcttcgtat cgggtttgg 480  
atcctcgacg tggctaacaa catgctccag ggtccatgcc gtgccttct gggcgcaccc 540  
gctgcccggg atgagaaaaa gacaaaggca gccaatgcct tcttccttt cttcatggcc 600  
gtcggcaaca tcctggcta tgctcgggg tcctacgacg gcctccaccg cctcttcccc 660  
ttcacggaaa ccgaggcatg caacgtcttc tgccaaacc tcaagagttt cttcttcttc 720  
gctatcgtcc tcctgggtgt cctcaccacc ttgggtgtga ttaccgtgaa agaaaactccc 780  
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tgcggagaac tttgtcttgc attcaagggg ctgaagaggc caatgtggat gttgatgttg 900  
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ggtcgtgagg tgtacgggtg tgacgtgggg cagaaggcgt acgattcggg agttcatgca 1020  
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ccgttggggc gtgtgggtgg gggaatcaag tgggtgtggg gaatcgtaa catcttggatg 1140  
gctatatgct tgggaatgac cgttctcatc acaaagatcg ctgagcatga acgtcttctt 1200  
aaccctgtct tggttggaa ccctccctc ggtatcaaag ttgggtccat ggttttcttc 1260  
tctgtcttgc gaatccctct tgcgattact ttcaagtgtcc catttgcattt acatctata 1320  
tactccagca cttccggagc aggccaaggt ctatcttgg gtgtccttaa tattgcaatt 1380  
gtcggtccac agatgatagt atcaaccata agtggacattt gggatgcctt gttcggcggt 1440  
ggaaacttgc ctgcattcgt gttgggtgcg gtggccggc tcgtgagtgc aatattagca 1500  
gttcttctgc tgccaaactcc aaagaaagct gatgaggtca gggcttcttag cctcaacatg 1560  
ggaagtttgc attagtgtgtt ctattatagg gctttacatg tttcacttac aaccttgctt 1620  
tgatatggga aaaagaactt agtctttaga ttcaagtgg gtgtgtgcattt gtgtatatta 1680  
gttattagac atgggtttta gatgcttcca tagccactt atgtccaagg acaatcatta 1740  
atttgtaaac ttgggtgcga caattataacc gaatagaaaa tcattaaaca tacatctttt 1800  
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tatttgaaaa aaaaaaaaaa aaaaa 1885

<210> 12  
<211> 494  
<212> PRT  
<213> Glycine max

<400> 12  
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Val Ser Ser Met Ala Ala Gly Ile Gln Phe Gly Trp Ala Leu Gln Leu  
20 25 30  
  
Ser Leu Leu Thr Pro Tyr Val Gln Thr Leu Gly Val Pro His Ala Trp  
35 40 45  
  
Ala Ser Phe Ile Trp Leu Cys Gly Pro Ile Ser Gly Leu Leu Val Gln  
50 55 60  
  
Pro Ile Val Gly Tyr Ser Ser Asp Arg Cys Gln Ser Arg Phe Gly Arg  
65 70 75 80  
  
Arg Arg Pro Phe Ile Leu Ala Gly Ser Leu Ala Val Ala Ile Ala Val  
85 90 95  
  
Phe Leu Ile Gly Tyr Ala Ala Asp Ile Gly His Ala Ala Gly Asp Asn  
100 105 110  
  
Leu Thr Gln Lys Thr Arg Pro Arg Ala Val Ala Ile Phe Val Ile Gly  
115 120 125  
  
Phe Trp Ile Leu Asp Val Ala Asn Asn Met Leu Gln Gly Pro Cys Arg  
130 135 140

Ala Phe Leu Gly Asp Leu Ala Ala Gly Asp Glu Lys Lys Thr Lys Ala  
145 150 155 160

Ala Asn Ala Phe Phe Ser Phe Phe Met Ala Val Gly Asn Ile Leu Gly  
165 170 175

Tyr Ala Ala Gly Ser Tyr Asp Gly Leu His Arg Leu Phe Pro Phe Thr  
180 185 190

Glu Thr Glu Ala Cys Asn Val Phe Cys Ala Asn Leu Lys Ser Cys Phe  
195 200 205

Phe Phe Ala Ile Val Leu Leu Val Val Leu Thr Thr Leu Val Leu Ile  
210 215 220

Thr Val Lys Glu Thr Pro Tyr Thr Pro Lys Ala Glu Lys Glu Thr Glu  
225 230 235 240

Asp Ala Glu Lys Thr His Phe Ser Cys Phe Cys Gly Glu Leu Cys Leu  
245 250 255

Ala Phe Lys Gly Leu Lys Arg Pro Met Trp Met Leu Met Leu Val Thr  
260 265 270

Ala Val Asn Trp Ile Ala Trp Phe Pro Tyr Phe Leu Phe Asp Thr Asp  
275 280 285

Trp Met Gly Arg Glu Val Tyr Gly Gly Asp Val Gly Gln Lys Ala Tyr  
290 295 300

Asp Ser Gly Val His Ala Gly Ser Leu Gly Leu Met Leu Asn Ala Val  
305 310 315 320

Val Leu Ala Val Met Ser Leu Ala Ile Glu Pro Leu Gly Arg Val Val  
325 330 335

Gly Gly Ile Lys Trp Leu Trp Gly Ile Val Asn Ile Leu Leu Ala Ile  
340 345 350

Cys Leu Gly Met Thr Val Leu Ile Thr Lys Ile Ala Glu His Glu Arg  
355 360 365

Leu Leu Asn Pro Ala Leu Val Gly Asn Pro Ser Leu Gly Ile Lys Val  
370 375 380

Gly Ser Met Val Phe Phe Ser Val Leu Gly Ile Pro Leu Ala Ile Thr  
385 390 395 400

Phe Ser Val Pro Phe Ala Leu Ala Ser Ile Tyr Ser Ser Thr Ser Gly  
405 410 415

Ala Gly Gln Gly Leu Ser Leu Gly Val Leu Asn Ile Ala Ile Val Val  
420 425 430

Pro Gln Met Ile Val Ser Thr Ile Ser Gly Pro Trp Asp Ala Leu Phe  
435 440 445

Gly Gly Gly Asn Leu Pro Ala Phe Val Leu Gly Ala Val Ala Val  
450 455 460

Val Ser Ala Ile Leu Ala Val Leu Leu Leu Pro Thr Pro Lys Lys Ala  
465 470 475 480

Asp Glu Val Arg Ala Ser Ser Leu Asn Met Gly Ser Leu His  
485 490

<210> 13  
<211> 1041  
<212> DNA  
<213> Glycine max

<220>  
<221> unsure  
<222> (1007)  
<223> n=a,c,g or t

<400> 13  
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ccaccaaaca caacaacaat ctctccaagc cttcctccct ccacacggag gctccgccc 120  
cgaggagccag tcccccccg aagatcatgg tgggtggcctc catcgccgcc ggggtgcaat 180  
tcgggtgggc cctacagctc tctctactta ccccttacgt ccaactgctg gggattcccc 240  
acacttgggc cgccttcatac tggctctgctg gcccaatctc cggcatgctc gtccagcccc 300  
tcgtgggata ccacagcgac cgctgcacct cccgcttcgg ccgcccggc cccttcatcg 360  
ccgcgggctc cctcggcgctc gccatcgccg tcttccttat cgctacgccc gccgaccc 420  
gcacatgtt cggcgaactcc ctagccaaaa aaaccggccc gcgcgcattgc atcttcgttg 480  
tcggcttctg gatttcgcac gtcgaaaca acatgctaca agggccctgc cgccgcctcc 540  
tggcgaccc ctgcggcgga gaacaacggg aaacgcgaaa cgcaaaacgccc ttcttcctt 600  
tcttcatggc cgtcgaaac gtcctgggct acgcccggg ctcttacagc ggctccaca 660  
acgtcttccc ttcaaaaaa acaaaaagcat gtgatgttta ctgcgcgaat ttgaagagt 720  
gtttcttcct ctccatcgctc ttcttcctca ctcttcac aatgccttg acctacgtga 780  
agagaaaaac ggtgtcgta gagaaaaacgg tgaggagttc ggtggaggag gatgggtccc 840  
acgggggcat gccgtgcctc gggcaattat tcggtgcggtt ccgcgaactg aagcgtcccc 900  
tgtggatccct tctgtgggtg acgtgtctga actgggattt cctggttctt ttttgcata 960  
tcgacaccga ctgggattgg ggcgtgaggt gtacggaggg aaaatnnggg gaaaggaaag 1020  
ggtacgataa ggggttccgt t 1041

<210> 14  
<211> 322  
<212> PRT  
<213> Glycine max

<220>  
<221> UNSURE  
<222> (311)  
<223> Xaa = ANY AMINO ACID

<220>  
<221> UNSURE  
<222> (321)  
<223> Xaa = ANY AMINO ACID

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1 5 10 15

Ser Ser Leu His Thr Glu Ala Pro Pro Pro Glu Ala Ser Pro Leu Arg  
20 25 30

Lys Ile Met Val Val Ala Ser Ile Ala Ala Gly Val Gln Phe Gly Trp

35

40

45

Ala Leu Gln Leu Ser Leu Leu Thr Pro Tyr Val Gln Leu Leu Gly Ile  
 50 55 60

Pro His Thr Trp Ala Ala Phe Ile Trp Leu Cys Gly Pro Ile Ser Gly  
 65 70 75 80

Met Leu Val Gln Pro Ile Val Gly Tyr His Ser Asp Arg Cys Thr Ser  
 85 90 95

Arg Phe Gly Arg Arg Pro Phe Ile Ala Ala Gly Ser Leu Ala Val  
 100 105 110

Ala Ile Ala Val Phe Leu Ile Gly Tyr Ala Ala Asp Leu Gly His Met  
 115 120 125

Phe Gly Asp Ser Leu Ala Lys Lys Thr Ala Pro Arg His Arg Ile Phe  
 130 135 140

Val Val Gly Phe Trp Ile Leu Asp Val Ala Asn Asn Met Leu Gln Gly  
 145 150 155 160

Pro Cys Arg Ala Leu Leu Gly Asp Leu Cys Ala Gly Glu Gln Arg Lys  
 165 170 175

Thr Arg Asn Ala Asn Ala Phe Phe Ser Phe Met Ala Val Gly Asn  
 180 185 190

Val Leu Gly Tyr Ala Ala Gly Ser Tyr Ser Gly Leu His Asn Val Phe  
 195 200 205

Pro Phe Thr Lys Thr Lys Ala Cys Asp Val Tyr Cys Ala Asn Leu Lys  
 210 215 220

Ser Cys Phe Phe Leu Ser Ile Ala Leu Leu Leu Thr Leu Ser Thr Ile  
 225 230 235 240

Ala Leu Thr Tyr Val Lys Glu Lys Thr Val Ser Ser Glu Lys Thr Val  
 245 250 255

Arg Ser Ser Val Glu Glu Asp Gly Ser His Gly Gly Met Pro Cys Phe  
 260 265 270

Gly Gln Leu Phe Gly Ala Phe Arg Glu Leu Lys Arg Pro Met Trp Ile  
 275 280 285

Leu Leu Leu Val Thr Cys Leu Asn Trp Asp Cys Leu Val Pro Phe Leu  
 290 295 300

Leu Phe Asp Thr Asp Trp Xaa Gly Arg Glu Val Tyr Gly Gly Lys Ile  
 305 310 315 320

Xaa Gly

<210> 15

<211> 578

<212> DNA

<213> Vernonia mespilifolia

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gttggggcc catgacggt ggtggtgacc aaaatggcag actctgaacg acagtttaag 120  
acgttgcggc acggtagcaa aaccgcgttg ccaccaggcg gcgacattaa agccgggtgct 180  
ttgtcaattt ttgccgtcct cggtgccccca ctagctgtga ctttc agtgt tccatgtgct 240  
cttgcatcaa tatttctaa cagttcagga gctggacaag gtctatcact tggtgtttg 300  
aatctagcaa tcgtcatacc acagatgttc gtatcagtac taagtggacc atgggacgca 360  
ctgttcggcg gtggaaactt accagcattt gtgggtggag caatttcggc tgca gtaagt 420  
gggatattat cgttcaccat gttcccttcg ccaccccccag atgtcgact ttcaaaggtt 480  
tccggagggt ggatgcatta gagagtaat aactgccact caacacgtcc cgattgtgct 540  
agattggac atttaggacc aaaaaaaaaaaaaaaa 578

<210> 16  
<211> 166  
<212> PRT  
<213> Vernonia mespilifolia

<400> 16  
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Phe Leu Leu Ala Val Cys Leu Ala Met Thr Val Val Val Thr Lys Met  
20 25 30  
  
Ala Asp Ser Glu Arg Gln Phe Lys Thr Leu Pro Asp Gly Ser Lys Thr  
35 40 45  
  
Ala Leu Pro Pro Gly Gly Asp Ile Lys Ala Gly Ala Leu Ser Ile Phe  
50 55 60  
  
Ala Val Leu Gly Ala Pro Leu Ala Val Thr Phe Ser Val Pro Cys Ala  
65 70 75 80  
  
Leu Ala Ser Ile Phe Ser Asn Ser Ser Gly Ala Gly Gln Gly Leu Ser  
85 90 95  
  
Leu Gly Val Leu Asn Leu Ala Ile Val Ile Pro Gln Met Phe Val Ser  
100 105 110  
  
Val Leu Ser Gly Pro Trp Asp Ala Leu Phe Gly Gly Asn Leu Pro  
115 120 125  
  
Ala Phe Val Val Gly Ala Ile Ser Ala Ala Val Ser Gly Ile Leu Ser  
130 135 140  
  
Phe Thr Met Leu Pro Ser Pro Pro Pro Asp Val Val Leu Ser Lys Val  
145 150 155 160  
  
Ser Gly Gly Gly Met His  
165

<210> 17  
<211> 1062  
<212> DNA  
<213> Triticum aestivum

<400> 17  
ctggaatgcc gtcagtgtc ctcgtcacccg gcctcacctg gctgtcctgg ttcccccttca 60  
tcctgtacga caccgactgg atgggtcggt agatctacca cggtgacccc aagggaaccc 120  
ccgacgaggc caacgcgttc caggcagggtg tcagggccgg ggcgttcggc ctgtactca 180  
actcggtcgt cctgggttc agtcgttcc tgatcgagcc gctgtgcaag aggctaggcc 240

cgccgggtggt gtgggtgtca agcaacttcc tcgtctgcat ctccatggcc gccatttgc 300  
 tcataagctg gtgggccact caggacctgc atgggtacat ccagcacgcc atcaccgcca 360  
 gcaaggagat caagatcgtc tccctcgccc tcttcgcctt cctcggaaatc cctctcgcca 420  
 ttctgtacag tgtcccttc gcggtgacgg cgcaagctggc ggcgaacaga ggcggtgcc 480  
 aagggtgtg cacgggcgtg ctgaacatcg ccatacgat accccaggtg atcatcgcg 540  
 tgggggcggg gccgtggac gagctgtcg gcaaggcga catccggcg ttcggcgtgg 600  
 cgtccgcctt cgcgctcatc ggccgcatcg tcggcatatt cctgtgtccc aagatctcca 660  
 ggcgcaggat ccggccgtc agcggcggcg gtcactgacc ggcgcgcg cccgtcgcc 720  
 tgagcatggc gaaggccat cgcgcggcc cgaaggtccc agcccaagctc ggcatttacc 780  
 aaattttcgc ataggcgtaa ctaggggct ctcgcctaag gactccgtag agcagaataa 840  
 gaatttgtgag gaacctgtat gtgtgtgtc ttttatgtcg ttttaagtca gtcgtgttgc 900  
 gaaaaatgga cagaggaatg cgggcattca tcgcccggctt ggggtgtcgcc tttgggttgc 960  
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 cagcgacaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa 1062

<210> 18  
 <211> 232  
 <212> PRT  
 <213> Triticum aestivum

<400> 18  
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 20 25 30  
  
 Tyr His Gly Asp Pro Lys Gly Thr Pro Asp Glu Ala Asn Ala Phe Gln  
 35 40 45  
  
 Ala Gly Val Arg Ala Gly Ala Phe Gly Leu Leu Leu Asn Ser Val Val  
 50 55 60  
  
 Leu Gly Phe Ser Ser Phe Leu Ile Glu Pro Leu Cys Lys Arg Leu Gly  
 65 70 75 80  
  
 Pro Arg Val Val Trp Val Ser Ser Asn Phe Leu Val Cys Ile Ser Met  
 85 90 95  
  
 Ala Ala Ile Cys Ile Ile Ser Trp Trp Ala Thr Gln Asp Leu His Gly  
 100 105 110  
  
 Tyr Ile Gln His Ala Ile Thr Ala Ser Lys Glu Ile Lys Ile Val Ser  
 115 120 125  
  
 Leu Ala Leu Phe Ala Phe Leu Gly Ile Pro Leu Ala Ile Leu Tyr Ser  
 130 135 140  
  
 Val Pro Phe Ala Val Thr Ala Gln Leu Ala Ala Asn Arg Gly Gly  
 145 150 155 160  
  
 Gln Gly Leu Cys Thr Gly Val Leu Asn Ile Ala Ile Val Ile Pro Gln  
 165 170 175  
  
 Val Ile Ile Ala Val Gly Ala Gly Pro Trp Asp Glu Leu Phe Gly Lys  
 180 185 190  
  
 Gly Asn Ile Pro Ala Phe Gly Val Ala Ser Ala Phe Ala Leu Ile Gly  
 195 200 205  
  
 Gly Ile Val Gly Ile Phe Leu Leu Pro Lys Ile Ser Arg Arg Gln Phe

210

215

220

Arg Ala Val Ser Gly Gly Gly His  
225 230

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<210> 19
<211> 2083
<212> DNA
<213> Triticum aestivum
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<220>  
<221> UNSURE  
<222> (1093)  
<223> n=a,c,g or t

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ccgtcctgcc cctagatcct tggccggca gggatacgcc gtagaattga taggcgaacg 180  
gacgagggtgg tgatcgccag ggccggctct ctgcccattgc gcgcggccgaa ggcaacggcg 240  
aggtggagct ctcggctggg gtcggccggg gaggccggg cgccgcggc gggggggagc 300  
aaccgcgtt ggacatcage ctcggcagac tcatacctcgc cgcatggtc gccggccggc 360  
tgcagtacgg atggcgctc cagctctccc tgctcacccc ctacgtccag actctgggac 420  
tttcgcattgc tctgacttca ttcatgtggc tctgcggccc tattgtggaa ttagtggttc 480  
aaccatcggt tggctctac agtgacaagt gcacatctag atggggaaaga cgcagaccgt 540  
ttattctgac agatgcatt ctcatctgca ttgctgttgt ggtcgtccgc ttctcggtc 600  
acattggagc tggctgggt gacagaagg aagagtgcag tcttatcat gggcctcggt 660  
ggcacgctgc aattgtgtat gttctggat tctggctcct tgacttctcc aacaacactg 720  
tgcaagggtcc agcgcgtgtc ctgatggctg atttatcagc tcagcatggaa cccagtgca 780  
caaattcaat ctctgttct tggatggcgc taggaatat cttggatac tcctctgggt 840  
ccacaacaaa ctggcacaag tggttccgt tcctccggac aagggttgc tggtaagcct 900  
gcgcaaatct gaaaggcga tttctggtgg cagtgcttgt cctggccttc tgtttggtga 960  
taactgtgat ctgcgccaag gagataccgt acaaggcgt tgcccccctc ccaacaaagg 1020  
gcaatggcca gttgaagtc gagccaccg ggccgctcgc cgtttcaaa ggcttcaaga 1080  
acttgccctcc tgnaatggcg tcgggtctcc tcgtcactgg cctcacctgg ctgtcctgg 1140  
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agggAACCCC cgacgaggcc aacgcgttcc aggccagggt cagggccggg gcgttccggc 1260  
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ggctaggccc ggggtgggtg tgggtctgtc gcaacttcct cgtctgcctc tccatggccg 1380  
cgatttgcatt cataagctgg tgggtactc aggacttgcg tgggtatatac cagcacgcca 1440  
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ctctcgccat tctgtacagt gtcctttcg cggtgacggc gcagctggcg gcgaagagag 1560  
gcggtgccca aggctgtgc acggcgtgc tcaacatcgc catcgatata ccccaagggtga 1620  
tcatcgccgt gggggccggg cctgtggacg agctgttccg caagggcaac atcccggcgt 1680  
tcggcatggc ctccgccttc ggcgtcatcg gcggcatcg cggcatattc ctgtcgccca 1740  
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ctcgccctaag gactccgtag agcagaataa gaattgttaga gaacctgtat gtgttgggtc 1920  
tgtatgtgcg tgaagtca gtcgtgttagc gaaaaatggaa cagaggaatg tggccatcca 1980  
tcaccggctg ggggtgtgtc ttgggttgt gacttgcgtg tagcaaaccacca aggtgatcaa 2040  
gtgaggggaa atgaatggat gatgaacttt cagcgacaaa aaa 2083

<210> 20  
<211> 522  
<212> PRT  
<213> *Triticum aestivum*

<400> 20  
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Gly Gly Gly Gly Ala Ala Gly Gly Glu Gln Pro Ala Val  
20 25 30

Asp Ile Ser Leu Gly Arg Leu Ile Leu Ala Gly Met Val Ala Gly Gly  
35 40 45

Val Gln Tyr Gly Trp Ala Leu Gln Leu Ser Leu Leu Thr Pro Tyr Val  
50 55 60

Gln Thr Leu Gly Leu Ser His Ala Leu Thr Ser Phe Met Trp Leu Cys  
65 70 75 80

Gly Pro Ile Ala Gly Leu Val Val Gln Pro Cys Val Gly Leu Tyr Ser  
85 90 95

Asp Lys Cys Thr Ser Arg Trp Gly Arg Arg Arg Pro Phe Ile Leu Thr  
100 105 110

Gly Cys Ile Leu Ile Cys Ile Ala Val Val Val Val Gly Phe Ser Ala  
115 120 125

Asp Ile Gly Ala Gly Leu Gly Asp Ser Lys Glu Glu Cys Ser Leu Tyr  
130 135 140

His Gly Pro Arg Trp His Ala Ala Ile Val Tyr Val Leu Gly Phe Trp  
145 150 155 160

Leu Leu Asp Phe Ser Asn Asn Thr Val Gln Gly Pro Ala Arg Ala Leu  
165 170 175

Met Ala Asp Leu Ser Ala Gln His Gly Pro Ser Ala Ala Asn Ser Ile  
180 185 190

Phe Cys Ser Trp Met Ala Leu Gly Asn Ile Leu Gly Tyr Ser Ser Gly  
195 200 205

Ser Thr Asn Asn Trp His Lys Trp Phe Pro Phe Leu Arg Thr Arg Ala  
210 215 220

Cys Cys Glu Ala Cys Ala Asn Leu Lys Gly Ala Phe Leu Val Ala Val  
225 230 235 240

Leu Val Leu Ala Phe Cys Leu Val Ile Thr Val Ile Phe Ala Lys Glu  
245 250 255

Ile Pro Tyr Lys Ala Ile Ala Pro Leu Pro Thr Lys Gly Asn Gly Gln  
260 265 270

Val Glu Val Glu Pro Thr Gly Pro Leu Ala Val Phe Lys Gly Phe Lys  
275 280 285

Asn Leu Pro Pro Met Pro Ser Val Leu Leu Val Thr Gly Leu Thr Trp  
290 295 300

Leu Ser Trp Phe Pro Phe Ile Leu Tyr Asp Thr Asp Trp Met Gly Arg  
305 310 315 320

Glu Ile Tyr His Gly Asp Pro Lys Gly Thr Pro Asp Glu Ala Asn Ala  
325 330 335

Phe Gln Ala Gly Val Arg Ala Gly Ala Phe Gly Leu Leu Leu Asn Ser

340

345

350

Val Val Leu Gly Phe Ser Ser Phe Leu Ile Glu Pro Leu Cys Lys Arg  
 355 360 365

Leu Gly Pro Arg Val Val Trp Val Ser Ser Asn Phe Leu Val Cys Leu  
 370 375 380

Ser Met Ala Ala Ile Cys Ile Ile Ser Trp Trp Ala Thr Gln Asp Leu  
 385 390 395 400

His Gly Tyr Ile Gln His Ala Ile Thr Ala Ser Lys Glu Ile Lys Ile  
 405 410 415

Val Ser Leu Ala Leu Phe Ala Phe Leu Gly Ile Pro Leu Ala Ile Leu  
 420 425 430

Tyr Ser Val Pro Phe Ala Val Thr Ala Gln Leu Ala Ala Lys Arg Gly  
 435 440 445

Gly Gly Gln Gly Leu Cys Thr Gly Val Leu Asn Ile Ala Ile Val Ile  
 450 455 460

Pro Gln Val Ile Ile Ala Val Gly Ala Gly Pro Trp Asp Glu Leu Phe  
 465 470 475 480

Gly Lys Gly Asn Ile Pro Ala Phe Gly Met Ala Ser Ala Phe Ala Leu  
 485 490 495

Ile Gly Gly Ile Val Gly Ile Phe Leu Leu Pro Lys Ile Ser Arg Arg  
 500 505 510

Gln Phe Arg Ala Val Ser Gly Gly Gly His  
 515 520

<210> 21

<211> 2160

<212> DNA

<213> Triticum aestivum

<400> 21

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 cccgcgttga tccgacgcgc cgttaggtt ataggcgaac gaacggggcg gtgatcggtcc 180  
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 cctcggcagg ctcatctcg ccggcatggt cgccggcggc gtgcagtacg gatgggcgtc 360  
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 cagtgacaag tgcactcaa gatggggaa acgcagaccg ttcatctga caggatgtat 540  
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 tgacagcaag gaagagtgcg gtctctatca tggcctcg tggcacgctg caattgtgt 660  
 tttcttgga ttctggctcc ttgacttctc caacaacaca gtgcaaggac cagcgcgtgc 720  
 tctgatggct gatttatcag cccagcatgg acccagtgcg gcaaattcaa tttctgttc 780  
 ttggatggca ctggaaata tcctaggata ctcatctggt tccacaaaata actggcacaa 840  
 gtggtttccg ttcctccggca caaggcgtt cggtgaagcc tgcgcaaatc taaaaggcgc 900  
 attctgggt gcagtgtgt tcctggccct ctgtttgggt ataaccgtga tttcgccaa 960  
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 cgagcccacc gggccgctcg ccgttccaa aggcttcaag aacttgctc ctggaatgcc 1080  
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caacgcgttc caggcaggtg tcagggccgg ggcgttcggc ctgctactca actcggtcgt 1260  
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cagaggaatg cgggcatcca tcgcccggctg ggggtgcgtc tttgggtgt gacttgcgtg 2040  
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aaaaaaaaaaa aaaaaaaaaaaa aaaaaaaaaaaa aaaaaaaaaaaa aaaaaaaaaaaa 2160

<210> 22  
<211> 522  
<212> PRT  
<213> Triticum aestivum

<400> 22  
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Gly Gly Gly Gly Ala Gly Gly Ala Asp Ala Pro Ala Val Asp  
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Ile Ser Leu Gly Arg Leu Ile Leu Ala Gly Met Val Ala Gly Gly Val  
35 40 45  
  
Gln Tyr Gly Trp Ala Leu Gln Leu Ser Leu Leu Thr Pro Tyr Val Gln  
50 55 60  
  
Thr Leu Gly Leu Ser His Ala Leu Thr Ser Phe Met Trp Leu Cys Gly  
65 70 75 80  
  
Pro Ile Ala Gly Leu Val Val Gln Pro Cys Val Gly Leu Tyr Ser Asp  
85 90 95  
  
Lys Cys Thr Ser Arg Trp Gly Arg Arg Arg Pro Phe Ile Leu Thr Gly  
100 105 110  
  
Cys Ile Leu Ile Cys Ile Ala Val Val Val Gly Phe Ser Ala Asp  
115 120 125  
  
Ile Gly Ala Ala Leu Gly Asp Ser Lys Glu Glu Cys Ser Leu Tyr His  
130 135 140  
  
Gly Pro Arg Trp His Ala Ala Ile Val Tyr Val Leu Gly Phe Trp Leu  
145 150 155 160  
  
Leu Asp Phe Ser Asn Asn Thr Val Gln Gly Pro Ala Arg Ala Leu Met  
165 170 175  
  
Ala Asp Leu Ser Ala Gln His Gly Pro Ser Ala Ala Asn Ser Ile Phe  
180 185 190  
  
Cys Ser Trp Met Ala Leu Gly Asn Ile Leu Gly Tyr Ser Ser Gly Ser  
195 200 205

Thr Asn Asn Trp His Lys Trp Phe Pro Phe Leu Arg Thr Arg Ala Cys  
210 215 220

Cys Glu Ala Cys Ala Asn Leu Lys Gly Ala Phe Leu Val Ala Val Leu  
225 230 235 240

Phe Leu Ala Phe Cys Leu Val Ile Thr Val Ile Phe Ala Lys Glu Ile  
245 250 255

Pro Tyr Lys Ala Ile Ala Pro Leu Pro Thr Lys Ala Asn Gly Gln Val  
260 265 270

Glu Val Glu Pro Thr Gly Pro Leu Ala Val Phe Lys Gly Phe Lys Asn  
275 280 285

Leu Pro Pro Gly Met Pro Ser Val Leu Leu Val Thr Gly Leu Thr Trp  
290 295 300

Leu Ser Trp Phe Pro Phe Ile Leu Tyr Asp Thr Asp Trp Met Gly Arg  
305 310 315 320

Glu Ile Tyr His Gly Asp Pro Lys Gly Thr Pro Asp Glu Ala Asn Ala  
325 330 335

Phe Gln Ala Gly Val Arg Ala Gly Ala Phe Gly Leu Leu Asn Ser  
340 345 350

Val Val Leu Gly Phe Ser Ser Phe Leu Ile Glu Pro Leu Cys Lys Arg  
355 360 365

Leu Gly Pro Arg Val Val Trp Val Ser Ser Asn Phe Leu Val Cys Leu  
370 375 380

Ser Met Ala Ala Ile Cys Ile Ile Ser Trp Trp Ala Thr Gln Asp Leu  
385 390 395 400

His Gly Tyr Ile Gln His Ala Ile Thr Ala Ser Lys Glu Ile Lys Ile  
405 410 415

Val Ser Leu Ala Leu Phe Ala Phe Leu Gly Ile Pro Leu Ala Ile Leu  
420 425 430

Tyr Ser Val Thr Phe Ala Val Thr Ala Gln Leu Ala Ala Asn Arg Cys  
435 440 445

Gly Gly Gln Trp Leu Cys Thr Gly Val Leu Asn Ile Ala Ile Ala Ile  
450 455 460

Pro Gln Val Ile Ile Ala Leu Gly Ala Gly Pro Trp Asp Glu Leu Phe  
465 470 475 480

Gly Lys Gly Asn Ile Pro Ala Phe Gly Val Ala Ser Ala Phe Ala Leu  
485 490 495

Ile Gly Gly Ile Val Gly Ile Phe Leu Leu Pro Lys Ile Ser Arg Leu  
500 505 510

Gln Phe Arg Ala Val Ser Gly Gly His  
515 520

<210> 23  
<211> 2030  
<212> DNA  
<213> Triticum aestivum

<400> 23

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gcagttcgcc tggcgctcc agctctccct cctcaccccc tacatccaga ctcttaggaat 180  
agaccatgccc atggcgctcc tcattttggct ttgcggggcc attactggtt ttgtggttca 240  
accgtgttgtt ggtgtctggaa gtgacaagt ccgcgtccaa tacgggagga gacggccgtt 300  
cattttggctt ggatgcgtgc tgatttggtc agctgttaact tttagtccgggt tttctgcaga 360  
ccttggctac atgttaggag acaccactga gcactgcagt acatacaaag gtctacgata 420  
tcgagctgtt tttatattca tttttggatt ctggatgctg gacccatgttca ataatacagt 480  
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gagtggaaat tggcacaaatg gtgttcctt tctgtatgact agggccctgtt gtgaagcttg 660  
tgtaattttt aaagcagctt tcttgatttc agttgttattc cttctgtttt gcatggctgt 720  
taccctctac tttgctgaag agattccact ggaaccaaag gatgcacagc agttatctga 780  
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tgatgggtc cgagaagggtt cattttgggtt gctattgtt tcagtcgtcc ttgggattgg 1200  
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gaatcttgcc atcgatccat ctcagatagt agtgcactc ggagcaggcc catgggacaa 1560  
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ttttaggcct gtgtgcatac aagtgtcgat gagaagttgtt aaaacatgtt cactgtttt 1920  
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<210> 24  
<211> 563  
<212> PRT  
<213> Triticum aestivum

<400> 24

Gly	Ser	Asp	Ala	Ala	Arg	Pro	Lys	Glu	Glu	Gln	Gly	Ser	Gly	Ala	Gly
1								10						15	

Ala Gly Glu Gly Gly Met Lys Gly Ala Pro Lys Trp Arg Val Val Leu

				20				25					30		
--	--	--	--	----	--	--	--	----	--	--	--	--	----	--	--

Ala Cys Met Val Ala Ala Gly Val Gln Phe Gly Trp Ala Leu Gln Leu

			35				40				45				
--	--	--	----	--	--	--	----	--	--	--	----	--	--	--	--

Ser Leu Leu Thr Pro Tyr Ile Gln Thr Leu Gly Ile Asp His Ala Met

			50				55			60					
--	--	--	----	--	--	--	----	--	--	----	--	--	--	--	--

Ala Ser Phe Ile Trp Leu Cys Gly Pro Ile Thr Gly Phe Val Val Gln

			65				70			75			80		
--	--	--	----	--	--	--	----	--	--	----	--	--	----	--	--

Pro Cys Val Gly Val Trp Ser Asp Lys Cys Arg Ser Lys Tyr Gly Arg  
85 90 95

Arg Arg Pro Phe Ile Leu Ala Gly Cys Val Leu Ile Cys Ala Ala Val  
100 105 110

Thr Leu Val Gly Phe Ser Ala Asp Leu Gly Tyr Met Leu Gly Asp Thr  
115 120 125

Thr Glu His Cys Ser Thr Tyr Lys Gly Leu Arg Tyr Arg Ala Ala Phe  
130 135 140

Ile Phe Ile Phe Gly Phe Trp Met Leu Asp Leu Ala Asn Asn Thr Val  
145 150 155 160

Gln Gly Pro Ala Arg Ala Leu Leu Ala Asp Leu Ser Gly Pro Asp Gln  
165 170 175

Cys Asn Ser Ala Asn Ala Ile Phe Cys Ser Trp Met Ala Val Gly Asn  
180 185 190

Val Leu Gly Phe Ser Ala Gly Ala Ser Gly Asn Trp His Lys Trp Phe  
195 200 205

Pro Phe Leu Met Thr Arg Ala Cys Cys Glu Ala Cys Gly Asn Leu Lys  
210 215 220

Ala Ala Phe Leu Ile Ala Val Val Phe Leu Leu Phe Cys Met Ala Val  
225 230 235 240

Thr Leu Tyr Phe Ala Glu Glu Ile Pro Leu Glu Pro Lys Asp Ala Gln  
245 250 255

Gln Leu Ser Asp Ser Ala Pro Leu Leu Asn Gly Ser Arg Asp Asp His  
260 265 270

Asp Ala Ser Ser Glu Gln Thr Asn Gly Gly Leu Ser Asn Gly His Ala  
275 280 285

Asp Ala Asn His Val Ser Ala Asn Ser Ser Ala Asp Ala Gly Ser Asn  
290 295 300

Ser Asn Lys Asp Asp Val Glu Ala Phe Asn Asp Gly Pro Gly Ala Val  
305 310 315 320

Leu Val Lys Ile Leu Thr Ser Met Arg His Leu Pro Pro Gly Met Tyr  
325 330 335

Ser Val Leu Leu Val Met Ala Leu Thr Trp Leu Ser Trp Phe Pro Phe  
340 345 350

Phe Leu Phe Asp Thr Asp Trp Met Gly Arg Glu Val Tyr His Gly Asp  
355 360 365

Pro Lys Gly Asn Ala Ser Glu Arg Lys Ala Tyr Asp Asp Gly Val Arg  
370 375 380

Glu Gly Ala Phe Gly Leu Leu Leu Asn Ser Val Val Leu Gly Ile Gly  
385 390 395 400

Ser Phe Leu Ile Asp Pro Leu Cys Arg Met Ile Gly Ala Arg Leu Val  
                  405                 410                 415  
  
 Trp Ala Ile Ser Asn Phe Ile Val Phe Ala Cys Met Leu Ala Thr Thr  
                  420                 425                 430  
  
 Ile Leu Ser Trp Ile Ser Tyr Asp Leu Tyr Ser Ser Lys Leu Gln His  
                  435                 440                 445  
  
 Ile Val Gly Ala Asp Lys Thr Val Lys Thr Ser Ala Leu Ile Leu Phe  
                  450                 455                 460  
  
 Ser Leu Leu Gly Leu Pro Leu Ser Ile Thr Tyr Ser Val Pro Phe Ser  
                  465                 470                 475                 480  
  
 Val Thr Ala Glu Leu Thr Ala Gly Thr Gly Gly Gln Gly Leu Ala  
                  485                 490                 495  
  
 Thr Gly Val Leu Asn Leu Ala Ile Val Ala Pro Gln Ile Val Val Ser  
                  500                 505                 510  
  
 Leu Gly Ala Gly Pro Trp Asp Lys Leu Leu Gly Gly Asn Val Pro  
                  515                 520                 525  
  
 Ala Phe Ala Leu Ala Ser Val Phe Ser Leu Ala Ala Gly Val Leu Ala  
                  530                 535                 540  
  
 Val Ile Lys Leu Pro Lys Leu Ser Asn Asn Tyr Gln Ser Ala Gly Phe  
                  545                 550                 555                 560  
  
 His Met Gly

<210> 25  
 <211> 501  
 <212> PRT  
 <213> Daucus carota

<400> 25  
 Met Ala Gly Pro Glu Ala Asp Arg Asn Arg His Arg Gly Gly Ala Thr  
     1              5                 10                 15

Ala Ala Pro Pro Pro Arg Ser Arg Val Ser Leu Arg Leu Leu Leu Arg  
     20             25                 30

Val Ala Ser Val Ala Cys Gly Ile Gln Phe Gly Trp Ala Leu Gln Leu  
     35             40                 45

Ser Leu Leu Thr Pro Tyr Val Gln Glu Leu Gly Ile Pro His Ala Trp  
     50             55                 60

Ser Ser Ile Ile Trp Leu Cys Gly Pro Leu Ser Gly Leu Leu Val Gln  
     65             70                 75                 80

Pro Ile Val Gly His Met Ser Asp Gln Cys Thr Ser Lys Tyr Gly Arg  
     85             90                 95

Arg Arg Pro Phe Ile Val Ala Gly Gly Thr Ala Ile Ile Leu Ala Val  
     100            105                 110

Ile Ile Ile Ala His Ser Ala Asp Ile Gly Gly Leu Leu Gly Asp Thr

115                    120                    125  
Ala Asp Asn Lys Thr Met Ala Ile Val Ala Phe Val Ile Gly Phe Trp  
130                    135                    140  
Ile Leu Asp Val Ala Asn Asn Met Thr Gln Gly Pro Cys Arg Ala Leu  
145                    150                    155                    160  
Leu Ala Asp Leu Thr Gly Asn Asp Ala Arg Arg Thr Arg Val Ala Asn  
165                    170                    175  
Ala Tyr Phe Ser Leu Phe Met Ala Ile Gly Asn Val Leu Gly Tyr Ala  
180                    185                    190  
Thr Gly Ala Tyr Ser Gly Trp Tyr Lys Val Phe Pro Phe Ser Leu Thr  
195                    200                    205  
Ser Ser Cys Thr Ile Asn Cys Ala Asn Leu Lys Ser Ala Phe Tyr Ile  
210                    215                    220  
Asp Ile Ile Phe Ile Ile Thr Thr Tyr Ile Ser Ile Ser Ala Ala  
225                    230                    235                    240  
Lys Glu Arg Pro Arg Ile Ser Ser Gln Asp Gly Pro Gln Phe Ser Glu  
245                    250                    255  
Asp Gly Thr Ala Gln Ser Gly His Ile Glu Glu Ala Phe Leu Trp Glu  
260                    265                    270  
Leu Phe Gly Thr Phe Arg Leu Leu Pro Gly Ser Val Trp Val Ile Leu  
275                    280                    285  
Leu Val Thr Cys Leu Asn Trp Ile Gly Trp Phe Pro Phe Ile Leu Phe  
290                    295                    300  
Asp Thr Asp Trp Met Gly Arg Glu Ile Tyr Gly Gly Glu Pro Asn Gln  
305                    310                    315                    320  
Gly Gln Ser Tyr Ser Asp Gly Val Arg Met Gly Ala Phe Gly Leu Met  
325                    330                    335  
Met Asn Ser Val Val Leu Gly Ile Thr Ser Val Leu Met Glu Lys Leu  
340                    345                    350  
Cys Arg Ile Trp Gly Ser Gly Phe Met Trp Gly Leu Ser Asn Ile Leu  
355                    360                    365  
Met Thr Ile Cys Phe Phe Ala Met Leu Leu Ile Thr Phe Ile Ala Lys  
370                    375                    380  
Asn Met Asp Tyr Gly Thr Asn Pro Pro Asn Gly Ile Val Ile Ser  
385                    390                    395                    400  
Ala Leu Ile Val Phe Ala Ile Leu Gly Ile Pro Leu Ala Ile Thr Tyr  
405                    410                    415  
Ser Val Pro Tyr Ala Leu Val Ser Thr Arg Ile Glu Ser Leu Gly Leu  
420                    425                    430  
Gly Gln Gly Leu Ser Met Gly Val Leu Asn Leu Ala Ile Val Val Pro  
435                    440                    445

Gln Val Ile Val Ser Leu Gly Ser Gly Pro Trp Asp Gln Leu Phe Gly  
450 455 460

Gly Gly Asn Ser Pro Ala Phe Val Val Ala Ala Leu Ser Ala Phe Ala  
465 470 475 480

Ala Gly Leu Ile Ala Leu Ile Ala Ile Arg Arg Pro Arg Val Asp Lys  
485 490 495

Ser Arg Leu His His  
500

<210> 26  
<211> 537  
<212> PRT  
<213> Oryza sativa

<400> 26  
Met Ala Arg Gly Ser Gly Ala Gly Gly Gly Gly Gly Gly Gly Gly  
1 5 10 15

Gly Leu Glu Leu Ser Val Gly Val Gly Gly Gly Ala Arg Gly Gly  
20 25 30

Gly Gly Gly Glu Ala Ala Ala Val Glu Thr Ala Ala Pro Ile Ser  
35 40 45

Leu Gly Arg Leu Ile Leu Ser Gly Met Val Ala Gly Gly Val Gln Tyr  
50 55 60

Gly Trp Ala Leu Gln Leu Ser Leu Leu Thr Pro Tyr Val Gln Thr Leu  
65 70 75 80

Gly Leu Ser His Ala Leu Thr Ser Phe Met Trp Leu Cys Gly Pro Ile  
85 90 95

Ala Gly Met Val Val Gln Pro Cys Val Gly Leu Tyr Ser Asp Arg Cys  
100 105 110

Thr Ser Lys Trp Gly Arg Arg Pro Tyr Ile Leu Thr Gly Cys Val  
115 120 125

Leu Ile Cys Leu Ala Val Val Val Ile Gly Phe Ser Ala Asp Ile Gly  
130 135 140

Tyr Ala Met Gly Asp Thr Lys Glu Asp Cys Ser Val Tyr His Gly Ser  
145 150 155 160

Arg Trp His Ala Ala Ile Val Tyr Val Leu Gly Phe Trp Leu Leu Asp  
165 170 175

Phe Ser Asn Asn Thr Val Gln Gly Pro Ala Arg Ala Leu Met Ala Asp  
180 185 190

Leu Ser Gly Arg His Gly Pro Gly Thr Ala Asn Ser Ile Phe Cys Ser  
195 200 205

Trp Met Ala Met Gly Asn Ile Leu Gly Tyr Ser Ser Gly Ser Thr Asn  
210 215 220

Asn	Trp	His	Lys	Trp	Phe	Pro	Phe	Leu	Lys	Thr	Arg	Ala	Cys	Cys	Glu
225				230					235						240
Ala	Cys	Ala	Asn	Leu	Lys	Gly	Ala	Phe	Leu	Val	Ala	Val	Ile	Phe	Leu
	245							250						255	
Ser	Leu	Cys	Leu	Val	Ile	Thr	Leu	Ile	Phe	Ala	Lys	Glu	Val	Pro	Phe
	260						265						270		
Lys	Gly	Asn	Ala	Ala	Leu	Pro	Thr	Lys	Ser	Asn	Glu	Pro	Ala	Glu	Pro
	275						280						285		
Glu	Gly	Thr	Gly	Pro	Leu	Ala	Val	Leu	Lys	Gly	Phe	Arg	Asn	Leu	Pro
	290				295					300					
Thr	Gly	Met	Pro	Ser	Val	Leu	Ile	Val	Thr	Gly	Leu	Thr	Trp	Leu	Ser
	305				310				315					320	
Trp	Phe	Pro	Phe	Ile	Leu	Tyr	Asp	Thr	Asp	Trp	Met	Gly	Arg	Glu	Ile
	325						330						335		
Tyr	His	Gly	Asp	Pro	Lys	Gly	Thr	Asp	Pro	Gln	Ile	Glu	Ala	Phe	Asn
	340						345						350		
Gln	Gly	Val	Arg	Ala	Gly	Ala	Phe	Gly	Leu	Leu	Leu	Asn	Ser	Ile	Val
	355						360						365		
Leu	Gly	Phe	Ser	Ser	Phe	Leu	Ile	Glu	Pro	Met	Cys	Arg	Lys	Val	Gly
	370					375				380					
Pro	Arg	Val	Val	Trp	Val	Thr	Ser	Asn	Phe	Leu	Val	Cys	Ile	Ala	Met
	385					390				395					400
Ala	Ala	Thr	Ala	Leu	Ile	Ser	Phe	Trp	Ser	Leu	Lys	Asp	Phe	His	Gly
	405						410						415		
Thr	Val	Gln	Lys	Ala	Ile	Thr	Ala	Asp	Lys	Ser	Ile	Lys	Ala	Val	Cys
	420						425						430		
Leu	Val	Leu	Phe	Ala	Phe	Leu	Gly	Val	Pro	Leu	Ala	Val	Leu	Tyr	Ser
	435						440						445		
Val	Pro	Phe	Ala	Val	Thr	Ala	Gln	Leu	Ala	Ala	Thr	Arg	Gly	Gly	Gly
	450						455						460		
Gln	Gly	Leu	Cys	Thr	Gly	Val	Leu	Asn	Ile	Ser	Ile	Val	Ile	Pro	Gln
	465						470						475		480
Val	Val	Ile	Ala	Leu	Gly	Ala	Gly	Pro	Trp	Asp	Glu	Leu	Phe	Gly	Lys
	485							490						495	
Gly	Asn	Ile	Pro	Ala	Phe	Gly	Leu	Ala	Ser	Gly	Phe	Ala	Leu	Ile	Gly
	500						505						510		
Gly	Val	Ala	Gly	Ile	Phe	Leu	Leu	Pro	Lys	Ile	Ser	Lys	Arg	Gln	Phe
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Trp	Ser	Val	Ser	Met	Gly	Gly	Gly	His							
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<213> Ricinus communis

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Ser Pro Leu Arg Lys Val Val Met Val Ala Ser Ile Ala Ala Gly Ile  
35 40 45  
  
Gln Phe Gly Trp Ala Leu Gln Leu Ser Leu Leu Thr Pro Tyr Val Gln  
50 55 60  
  
Leu Leu Gly Ile Pro His Thr Trp Ala Ala Phe Ile Trp Leu Cys Gly  
65 70 75 80  
  
Pro Ile Ser Gly Met Leu Val Gln Pro Ile Val Gly Tyr His Ser Asp  
85 90 95  
  
Arg Cys Thr Ser Arg Phe Gly Arg Arg Arg Pro Phe Ile Ala Ser Gly  
100 105 110  
  
Ala Ala Phe Val Ala Ile Ala Val Phe Leu Ile Gly Tyr Ala Ala Asp  
115 120 125  
  
Leu Gly His Leu Ser Gly Asp Ser Leu Asp Lys Ser Pro Lys Thr Arg  
130 135 140  
  
Ala Ile Ala Ile Phe Val Val Gly Phe Trp Ile Leu Asp Val Ala Asn  
145 150 155 160  
  
Asn Met Leu Gln Gly Pro Cys Arg Ala Leu Leu Ala Asp Leu Ser Gly  
165 170 175  
  
Thr Ser Gln Lys Lys Thr Arg Thr Ala Asn Ala Leu Phe Ser Phe Phe  
180 185 190  
  
Met Ala Val Gly Asn Val Leu Gly Tyr Ala Ala Gly Ala Tyr Thr His  
195 200 205  
  
Leu Tyr Lys Leu Phe Pro Phe Thr Lys Thr Thr Ala Cys Asp Val Tyr  
210 215 220  
  
Cys Ala Asn Leu Lys Ser Cys Phe Phe Ile Ser Ile Val Leu Leu Leu  
225 230 235 240  
  
Ser Leu Thr Val Leu Ala Leu Ser Tyr Val Lys Glu Lys Pro Trp Ser  
245 250 255  
  
Pro Asp Gln Ala Val Asp Asn Ala Glu Asp Asp Thr Ala Ser Gln Ala  
260 265 270  
  
Ser Ser Ser Ala Gln Pro Met Pro Phe Phe Gly Glu Ile Leu Gly Ala  
275 280 285  
  
Phe Lys Asn Leu Lys Arg Pro Met Trp Ile Leu Leu Val Thr Cys  
290 295 300

Leu Asn Trp Ile Ala Trp Phe Pro Phe Leu Leu Phe Asp Thr Asp Trp  
305 310 315 320

Met Gly Arg Glu Val Tyr Gly Gly Asp Ser Ser Gly Ser Ala Glu Gln  
325 330 335

Leu Lys Leu Tyr Asp Arg Gly Val Arg Ala Gly Ala Leu Gly Leu Met  
340 345 350

Leu Asn Ser Val Val Leu Gly Phe Thr Ser Leu Gly Val Glu Val Leu  
355 360 365

Ala Arg Gly Val Gly Val Lys Arg Leu Trp Gly Ile Val Asn Phe  
370 375 380

Val Leu Ala Val Cys Leu Ala Met Thr Val Leu Val Thr Lys Gln Ala  
385 390 395 400

Glu Ser Thr Arg Arg Phe Ala Thr Val Ser Gly Gly Ala Lys Val Pro  
405 410 415

Leu Pro Pro Pro Ser Gly Val Lys Ala Gly Ala Leu Ala Leu Phe Ala  
420 425 430

Val Met Gly Val Pro Gln Ala Ile Thr Tyr Ser Ile Pro Phe Ala Leu  
435 440 445

Ala Ser Ile Phe Ser Asn Thr Ser Gly Ala Gly Gln Gly Leu Ser Leu  
450 455 460

Gly Val Leu Asn Leu Ser Ile Val Ile Pro Gln Met Ile Val Ser Val  
465 470 475 480

Ala Ala Gly Pro Trp Asp Ala Leu Phe Gly Gly Asn Leu Pro Ala  
485 490 495

Phe Val Val Gly Ala Val Ala Ala Leu Ala Ser Gly Ile Phe Ala Leu  
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Thr Met Leu Pro Ser Pro Gln Pro Asp Met Pro Ser Ala Lys Ala Leu  
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Thr Ala Ala Phe His  
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Pro Leu Arg Lys Ile Met Val Val Ala Ser Ile Ala Ala Gly Val Gln  
35 40 45

Phe Gly Trp Ala Leu Gln Leu Ser Leu Leu Thr Pro Tyr Val Gln Leu  
50 55 60

Leu Gly Ile His His Thr Trp Ala Ala Tyr Ile Trp Leu Cys Gly Pro  
65 70 75 80

Ile Ser Gly Met Leu Val Gln Pro Ile Val Gly Tyr His Ser Asp Arg  
85 90 95

Cys Thr Ser Arg Phe Gly Arg Arg Pro Phe Ile Ala Ala Gly Ser  
100 105 110

Ile Ala Val Ala Ile Ala Val Phe Leu Ile Gly Tyr Ala Ala Asp Leu  
115 120 125

Gly His Ser Phe Gly Asp Ser Leu Asp Gln Lys Val Arg Pro Arg Ala  
130 135 140

Ile Gly Ile Phe Val Val Gly Phe Trp Ile Leu Asp Val Ala Asn Asn  
145 150 155 160

Met Leu Gln Gly Pro Cys Arg Ala Leu Leu Gly Asp Leu Cys Ala Gly  
165 170 175

Asn Gln Arg Lys Thr Arg Asn Ala Asn Ala Phe Phe Ser Phe Phe Met  
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Ala Val Gly Asn Val Leu Gly Tyr Ala Ala Gly Ala Tyr Ser Lys Leu  
195 200 205

Tyr His Val Phe Pro Phe Thr Lys Thr Lys Ala Cys Asn Val Tyr Cys  
210 215 220

Ala Asn Leu Lys Ser Cys Phe Phe Leu Ser Ile Ala Leu Leu Thr Val  
225 230 235 240

Leu Ala Thr Ser Ala Leu Ile Tyr Val Lys Glu Thr Ala Leu Thr Pro  
245 250 255

Glu Lys Thr Val Val Thr Thr Glu Asp Gly Gly Ser Ser Gly Gly Met  
260 265 270

Pro Cys Phe Gly Gln Leu Ser Gly Ala Phe Lys Glu Leu Lys Arg Pro  
275 280 285

Met Trp Ile Leu Leu Leu Val Thr Cys Leu Asn Trp Ile Ala Trp Phe  
290 295 300

Pro Phe Leu Leu Phe Asp Thr Asp Trp Met Gly Lys Glu Val Tyr Gly  
305 310 315 320

Gly Thr Val Gly Glu Gly His Ala Tyr Asp Met Gly Val Arg Glu Gly  
325 330 335

Ala Leu Gly Leu Met Leu Asn Ser Val Val Leu Gly Ala Thr Ser Leu  
340 345 350

Gly Val Asp Ile Leu Ala Arg Gly Val Gly Gly Val Lys Arg Leu Trp  
355 360 365

Gly Ile Val Asn Phe Leu Leu Ala Ile Cys Leu Gly Leu Thr Val Leu

370

375

380

Val Thr Lys Leu Ala Gln His Ser Arg Gln Tyr Ala Pro Gly Thr Gly  
385 390 395 400

Ala Leu Gly Asp Pro Leu Pro Pro Ser Glu Gly Ile Lys Ala Gly Ala  
405 410 415

Leu Thr Leu Phe Ser Val Leu Gly Val Pro Leu Ala Ile Thr Tyr Ser  
420 425 430

Ile Pro Phe Ala Leu Ala Ser Ile Phe Ser Ser Thr Ser Gly Ala Gly  
435 440 445

Gln Gly Leu Ser Leu Gly Val Leu Asn Leu Ala Ile Val Ile Pro Gln  
450 455 460

Met Phe Val Ser Val Leu Ser Gly Pro Trp Asp Ala Leu Phe Gly Gly  
465 470 475 480

Gly Asn Leu Pro Ala Phe Val Val Gly Ala Val Ala Ala Leu Ala Ser  
485 490 495

Gly Ile Leu Ser Ile Ile Leu Leu Pro Ser Pro Pro Pro Asp Met Ala  
500 505 510

Lys Ser Val Ser Ala Thr Gly Gly Gly Phe His  
515 520

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C  
cont